PJC 2017 H2 Prelim Exam Paper 2

Question:

The firm's decisions and strategies are affected by cost, revenue, and threat from existing and potential competitors.

(a) Explain how producers in imperfect markets make rational price and output decision based on cost and revenue consideration. [10]

(b) Discuss the extent to which the behaviour of firms is influenced by the threat of competition. [15]

Producers in imperfect market would make rational decision of maximising profit by producing at an output where marginal cost is equal to marginal revenue (MC=MR). They would also attempt to price discriminate if they have control over the market to maximize profits. In the case where they earn subnormal profit, it would also make decisions whether to shut down or continue production to maximise profit.

Producers will aim to produce at the output where MC=MR to maximise profit.

In Figure 1, Producers will produce at Q_M, where MC = MR to maximise output and sell it at price = P_M as indicated by the AR (DD) curve. If producers produce at Q_1, which is below profit maximising output, the marginal revenue is MR_1 while marginal cost is MC_1. This means that the additional revenue is more than additional cost and producers could generate more revenue and profit if they increase output towards Q_M. On the other hand, producers produce beyond Q_M, for example, Q_2, the marginal cost of producing at Q_2 is MC_2 while marginal revenue is MR_2. This means that producers can reduce cost by reducing its output, leading to an increase in profits. Hence, producers would decrease its output to increase its profits. At Q_M, where MC=MR, producers cannot increase its profits any further by changing its output.

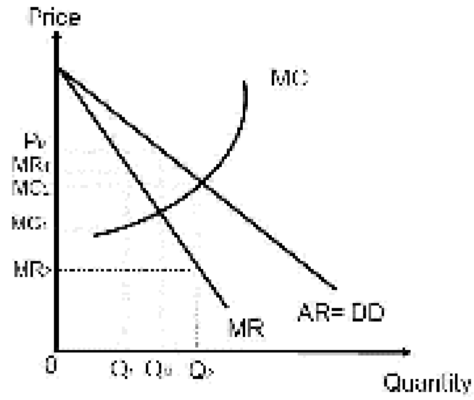

Fig 1: Profit maximising output

Hence, producers will produce at output Q_M, and price it at P_M to maximise profit.

For producers who dominate the market (e.g.: Monopoly), they could also practice price discrimination to maximise revenue and profit.

Price discrimination is the practice of charging different prices for the same product or services for reasons not due to cost differences. It can occur when producers have control of market supply, able to separate the market with little cost and the separate markets have different price elasticity of demand.

For example, public transport firms are able to charge a lower price for students and elderly, where their demand is price elastic (due to high proportion of income spent). This would allow public transport companies to earn higher revenue as the lowering of price will result in a more proportionate increase in quantity demanded, leading to an increase in total revenue. On the other hand, they will be able to charge a higher price for working adults as their demand is price inelastic (due to low proportion of income spent on public transportation). Hence the increase in price will result in a less than proportionate fall in quantity demanded, leading to an increase in total revenue.

Hence, producers could price discriminate by charging different prices at profit maximising output in markets with different price elasticity of demand to increase total revenue and hence maximise profits.

In the case where the producer is earning subnormal profit when they are producing at profit maximising output, firms would need to decide whether to shut down or continue production.

Producers will shut down when the price is less than average variable cost of production. From Fig 2, at profit maximising output Q_M, price is P_M. Even though the firm is earning subnormal profit ($AC_M > P_M$), price is more than average variable cost ($P_M > AVC_M$). Hence the producer will continue production as the revenue earned could be used to offset the fixed cost.

Fig 2: Producer continue operation

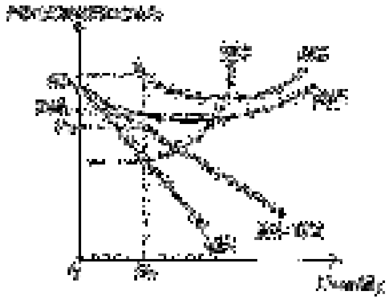

Fig 3: Producer decides to shutdown

However, if the average variable cost at profit maximising output is more than price (seen in Fig 3, where $P_M < AVC_M$ at Q_M), the revenue earned from production is not enough to cover the variable cost. Hence, producers will choose to stop production to minimise loss.

Thus, if producers earn subnormal profit when they produce at MC = MR, they would decide to continue production only when $P_M > AVC_M$ at profit maximising output.

Thus producers will make a rational decision to produce at MC=MR to maximise profit and price its goods as indicated by its AR. However, its pricing decision may vary if they could price discriminate. They would also consider shutting down production if they earn subnormal profit.

b) Discuss the extent to which the behaviour of firms is influenced by the threat of competition. [15]
Firms will normally engage in price and non-price strategies (behaviours) in order to maximise profits. While the behaviour of some firms in oligopoly and monopolistic competitive industries is influenced by the level of threat of competition in the market, there are also other factors that influence the behaviour of firms as the profit level of firms and alternative aims of firms. As such, the extent of which the threat of existing and potential competition influence the behaviour of the firms depends on whether which factor has greater significance of it.
Threat of competition could influence the behaviour of firms in an oligopoly market.
With a few large dominant firms in an oligopoly market (e.g: telecommunication firms in Singapore), they are subjected to existing and potential threat of competition since the government deregulate the industry. Hence, they exhibit mutual interdependency as the action of one firm would affect others. In light of competition, they would avoid changing their prices. This is because if a firm increases its price, their rivals would not follow suit, which could result in a more than proportionate fall in quantity demanded, resulting in a fall in total revenue and profit, ceteris paribus. If a firm reduces its price, the rivals would follow suit, which could result in a less than proportionate increase in quantity demanded, causing total revenue and profit to fall, ceteris paribus. As a result, in light of competition, Singtel, M1 and Starhub would usually avoid price competition. Instead, they would engage in non-price competition such as improving connectivity island wide, varying the amount of mobile data given to subscribers, to increase their demand and quantity, leading to an increase in total revenue and profit.
Hence, oligopoly firms in light of threat of competition, would avoid changing prices and instead focus on non-pricing strategies to increase total revenue and profit.
However, even with threat of competition, oligopolistic firm may still engage in pricing competition to achieve alternative aims.
Instead of aiming to achieve profit maximisation, firms in oligopoly would use pricing strategies or predatory pricing strategies in order to increase market share. This strategy could be used in attempt to establish market dominance in the industry in the short run. In Singapore's telecommunication industry, there was a price war in 2016, where Singtel, M1 and Starhub reduced its monthly subscription plans to gain more market share in the industry even if it means that they would see a fall in total revenue in the short run. This behaviour might be influenced by alternative aims of firms (market share dominance). However, the underlying reason for this behaviour is to reduce existing threat and attempts to ensure that it could withstand the pressure of potential threat in the future. Hence, for oligopoly firms, the threat of competition will influence firms' behaviour by a large extent.
The threat of competition influences the behaviour of firms in a monopolistic competitive industry.
Because there are many small firms with insignificant market share selling similar but differentiated products, it is unlikely that their actions would affect the decision of firms as the action of one firm would have very little impact on individual firms. Hence, they would decide on price and engage in non-price strategies independent from one another in order to increase profit. However, if the monopolistic firms are operating very close to each other, the threat of competition among its existing firms would result in them displaying mutual interdependence behaviour such as engaging in pricing and non-pricing strategies such as advertising in order to increase demand, quantity and total revenue.
Hence, the behaviour of monopolistic competitive firms would be influenced based on the level of threat of competition in the industry.
However, the threat of competition is not significant in deciding the behaviour of firms in monopolistic competitive industry.

As monopolistic competitive industry have low barrier to entry, firms will end up earning normal profit in the long run. As a result, this would influence the type of non-pricing strategy they engage in. Firms will have no financial ability to engage in research and development to create real significant changes to its products in the long run. So in the midst of threat of competition, they will be restricted in the variety of non-price strategies that it could use. In the end, they might only be able to engage in advertising in order to create imaginary differences between its products and its rivals' in order to maximise profits.

Some monopolistic competitive firms could also be aiming to be profit satisficing. For example, social entrepreneurs could set up restaurants in order to advocate a cause (providing job opportunities for people with mental disabilities). Thus, it would engage in advertising in order to increase awareness even if they do not face threat of competition.

So, even if there is a threat of competition in a monopolistic competitive industry, the level of profit and the alternative aims of firms seem to play a more significant role in influencing how they behaviour with or without threat of competition.

Thus, the type of non-price strategies to increase profit by monopolistic competitive firms is influenced by threat of competition by a small extent. The profit level of the firm and alternative aims of firms could be more significant in this case.

Besides threat of competition, other factors including profit level and alternative aims of firms could influence the behaviour of firms. For oligopoly firms, the threat of competition influences the behaviour by a larger extent while it may have a smaller extent of influence on a monopolistic competitive firms' behaviour.